AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An optical wavelength division multiplexing transmission system comprising:

a first optical fiber transmission path for a wavelength division multiplexed signal to be input therefrom;

a second optical fiber transmission path having a zero-dispersion wavelength different from the first optical fiber transmission path;

and an optical repeater which receives the wavelength division multiplexed signal from said first optical fiber transmission path, wavelength-converts the received signal with respect to respective wavelengths thereof so as to minimize SPM-GVD effect and FWM in the second optical fiber transmission path in accordance with the zero-dispersion wavelength, and outputs the wavelength-converted signal to said second optical fiber transmission path.

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2. (Previously Presented) The optical wavelength division multiplexing transmission system according to claim 1, wherein said optical repeater is configured to shift, by a predetermined value, all wavelengths of the wavelength division multiplexed signal.

3. (Previously Presented) The optical wavelength division multiplexing transmission system according to claim 1, wherein said

optical repeater is configured for wavelength intervals of the wavelength division multiplexed signal input from said first optical fiber transmission path to be in even intervals and for wavelength intervals of the wavelength division multiplexed signal output to said second optical fiber transmission path to be in uneven intervals.

4. (Previously Presented) The optical wavelength division multiplexing transmission system according to claim 1, wherein said optical repeater is configured for wavelength intervals of the wavelength division multiplexed signal input from said first optical fiber transmission path to be in uneven intervals and for wavelength intervals of the wavelength division multiplexed signal output to said second optical fiber transmission path to be in even intervals.

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5. (Previously Presented) The optical wavelength division multiplexing transmission system according to claim 1, wherein said optical repeater is configured for wavelength intervals of the wavelength division multiplexed signal input from said first optical fiber transmission path to be a first constant value $\Delta\lambda$ and for wavelength intervals of the wavelength division multiplexed signal output to said second optical fiber transmission path to be a second constant value $\Delta\lambda'$.

6. (Previously Presented) The optical wavelength division multiplexing transmission system according to claim 1, wherein said optical repeater is configured for a number of wavelengths of the wavelength division multiplexed signal input from said first optical fiber transmission path to be a natural number n and for a number of wavelengths of the wavelength division multiplexed signal output to said second optical fiber transmission path to be a natural number m ($m \neq n$).

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7. (Original) The optical wavelength division multiplexing transmission system according to claim 1, wherein said optical repeater comprises a non-linear element that performs the wavelength conversion.

8. (Original) The optical wavelength division multiplexing transmission system according to claim 1, wherein said optical repeater comprises one or more semiconductor optical amplifiers.

9. (Original) The optical wavelength division multiplexing transmission system according to claim 1, wherein said optical repeater comprises one or more electric field absorption type optical modulators and one or more light sources.

10. (Original) The optical wavelength division multiplexing transmission system according to claim 1, wherein said optical repeater comprises one or more light sources and an optical fiber having a non-linear optical effect.

11. (Previously Presented) An optical repeater, comprising:

a plurality of wavelength converters configured to receive a plurality of input wavelength signals and output a corresponding plurality of output wavelength signals based on the plurality of input wavelength signals; and

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a wave combiner configured to receive the plurality of the output wavelength signals from said plurality of wavelength converters and output an output wavelength division multiplexed signal based on the plurality of the output wavelength signals,

wherein the output wavelength division multiplexed signal is such that an SPM-GVD effect and FWM are minimized relative to an output zero-dispersion wavelength, and

wherein at least one pair of the input and corresponding output wavelength signals are of different wavelengths.

12. (Previously Presented) The optical repeater of claim 11, further comprising a wavelength selector configured to receive an input wavelength division multiplexed signal and output the plurality of plurality of input wavelength signals to the plurality

of wavelength converters.

13. (Previously Presented) The optical repeater of claim 11, further comprising:

a plurality of wavelength selectors corresponding to the plurality of wavelength converters, wherein each wavelength selector is configured to receive an input wavelength division multiplexed signal and output a particular input wavelength signal to the corresponding wavelength converter; and

a wave divider configured to receive the input wavelength division multiplexed signal and output the same to said plurality of said wavelength selectors.

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14. (Previously Presented) The optical repeater of claim 13, further comprising an optical amplifier configured to receive the output wavelength division multiplexed signal from said wave combiner and output a loss compensated output wavelength division multiplexed signal.

15. (Previously Presented) The optical repeater of claim 13, further comprising a plurality of optical amplifiers corresponding to said plurality of said wavelength converters wherein each optical amplifier is configured to receive the output wavelength signal from said corresponding wavelength converter and output a

loss compensated output wavelength signal to said wave combiner.

16. (Previously Presented) The optical repeater of claim 15, further comprising an optical amplifier configured to receive the output wavelength division multiplexed signal from said wave combiner and output a loss compensated output wavelength division multiplexed signal.

17. (Previously Presented) The optical repeater of claim 11, wherein at least one wavelength converter comprises:

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an opto-electrical converter configured to convert the input wavelength signal to an electrical signal; and

an electro-optical converter configured to convert the electrical signal from the opto-electrical converter to the output wavelength signal,

wherein a wavelength of the input wavelength signal is different from a wavelength of the output wavelength signal.

18. (Previously Presented) The optical repeater of claim 17, wherein said opto-electrical converter is one of a photo-diode, an avalanche photo-diode, and a photo-counter.

19. (Previously Presented) The optical repeater of claim 17, wherein said electro-optical converter is a semiconductor laser.

20. (Previously Presented) The optical repeater of claim 11, wherein at least one wavelength converter comprises:

a light source configured to output a pumplight;

a photo-coupler configured to receive the pumplight and the input wavelength signal and output a combined light;

a semiconductor optical amplifier configured to receive the combined light and output a wavelength-converted optical signal based on the input wavelength signal; and

an optical filter configured to receive the wavelength-converted optical signal and output the output wavelength signal,

B1 con't wherein a wavelength of the input wavelength signal is different from a wavelength of the output wavelength signal.

21. (Previously Presented) The optical repeater of claim 20, wherein said semiconductor optical amplifier is configured to generate the wavelength-converted optical signal through four-wave mixing.

22. (Previously Presented) The optical repeater of claim 11, wherein at least one wavelength converter comprises:

a light source configured to output a non-modulated probe light with a wavelength equal to the wavelength of the output wavelength signal;

a photo-coupler configured to receive the non-modulated probe

light and the input wavelength signal and output a combined light;

an electric field absorption type modulator configured to receive the combined light and output a modulated probe light based on the input wavelength signal; and

an optical filter configured to receive the modulated probe light and output the output wavelength signal.

23. (Previously Presented) The optical repeater of claim 22, wherein the electric field absorption type modulator is configured to modulate the non-modulated probe light by a mutual absorptive modulation effect.

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24. (Previously Presented) The optical repeater of claim 11, wherein at least one wavelength converter comprises:

a light source configured to output a pumplight;

a photo-coupler configured to receive the pumplight and the input wavelength signal and output a combined light;

an optical fiber configured to receive the combined light and output a wavelength-converted optical signal based on the input wavelength signal; and

an optical filter configured to receive the wavelength-converted optical signal and output the output wavelength signal,

wherein a wavelength of the input wavelength signal is different from a wavelength of the output wavelength signal.

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25. (Previously Presented) The optical repeater of claim 20, wherein said optical fiber of said wavelength converter is configured to generate the wavelength-converted optical signal through four-wave mixing.